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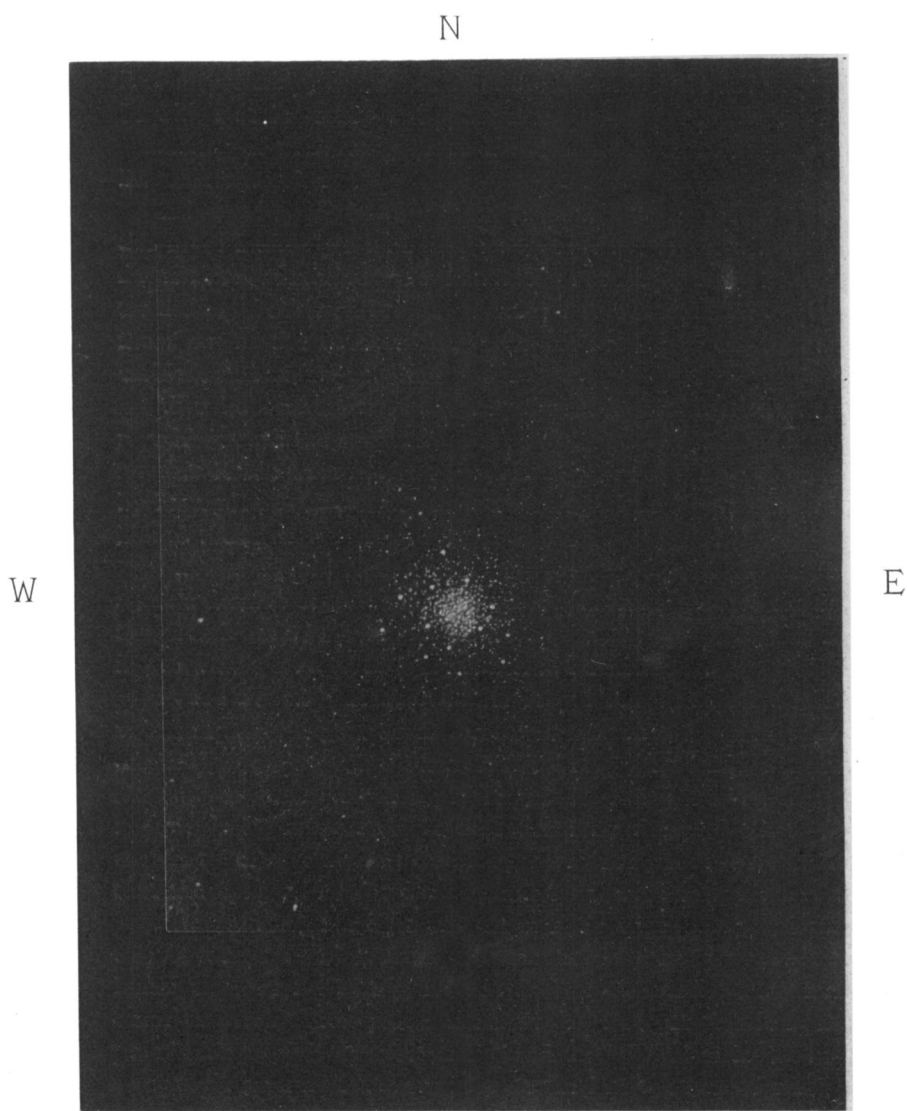


Diagram of the Cluster in Hercules.

CHARACTERISTIC FORMS WITHIN THE CLUSTER IN *HERCULES*.

During 1890 and 1891 the cluster in *Hercules* was photographed with the Great Telescope, by Professor CAMPBELL and myself, as follows :

1890, June 8,	exposed 60 ^m ;	1890, August 4,	exposed 17 ^m ;
June 9,	" 120 ^m ;	1891, July 28,	" 122 ^m ;
June 11,	" 138 ^m ;	August 25,	" 170 ^m .
August 3,	" 58 ^m ;		

The best negative is that of July 28. Glass copies of it have been sent to various observatories, etc., and have been exhibited to the Astronomical Society of the Pacific.

The accompanying cut gives a diagram (only) from one of the negatives and is intended, not as a picture, but simply to shorten the verbal explanations.

In the first place let us define a dark channel or lane to be a space of considerable length, empty of stars, and bordered at least on one side by a row of stars, thus

* * * * *

It is usually bordered on both sides by stars, thus

* * * * *

* * * * *

In the accompanying cut the reader will note sundry dots which were inserted on the original negative before printing. They are easily distinguished from the stars of the cluster, and serve to mark certain positions, approximately. At each one of these dots at least *two* dark channels meet (and usually *three* such) which make with each other angles of about 120° (sometimes a little more, sometimes a little less). No or few other prominent channels can be found which meet at angles different from 120° ±. There are *thirteen* such dots or intersections on the plate, *one* of which corresponds to the intersection of the dark channels discovered by Lord ROSSE. They may be considered as centres of force.

An inspection of the original negative shows that if the exposures could have been prolonged to 3½ or 4 hours, other dark lanes, which faintly show in our present negatives, would have become plain, and it also seems to show that these new dark

lanes (bordered by stars which are very faint in our present negatives) meet at the angle of $120^{\circ} \pm$. The *thirteen* intersections here marked make it plain that the forces which have formed this particular cluster are such as to produce this type-form, and to make it characteristic of the cluster in *Hercules*. It is also (probably) characteristic of the Trifid Nebula (G. C. 4355) in which at least two such intersections can be located. The symmetry of the arrangement of the thirteen dots is, to say the least, note-worthy.

It is not intended to say that the systems of dark channels are the most immediate and direct result of the forces which have formed the cluster; they may be but the consequences of the intersection of other and simpler forms; but it is intended to point them out as the forms which can most readily be detected and verified, and as truly characteristic.

Visual observations on Sept. 27 by Professor CAMPBELL and myself confirm the results from the negatives, and I have found a number of the channels in a beautiful negative of the cluster taken by ISAAC ROBERTS, esq., at Crowboro', and kindly presented by him to the Lick Observatory.

In *Himmel und Erde* for 1889, page 503, I pointed out that an examination of the more prominent planetary nebulae showed the prevalence of a certain limited number of type-forms, according to which the nebulosities seemed to be arranged.

In the *Monthly Notices* of the Royal Astronomical Society volume 48, page 388, Professor SCHAEBERLE and myself spoke of the discovery of a helix-nebula (G. C. 4373). In the *Publications* of the A. S. P., vol. I, page 25, I showed that essentially all the "spiral" nebulae might be formed by the projection of a certain type-helix whose form was given. It seems to follow also that the cluster in *Hercules* is formed by forces which have impressed upon it (at least) one characteristic type-form; and that this form recurs no less than thirteen times in our negatives of two hours exposure. The proof of this is to be derived from an examination of the negatives themselves. I regret that it is not practicable to give a perfect reproduction of them here. The accompanying cut will, however, locate the intersections of which I have spoken, and their verification may be obtained from the original negatives now at the Lick Observatory, or from better ones which will be taken here and elsewhere.

E. S. H.

GIFT TO THE LICK OBSERVATORY FOR THE PUBLICATION OF THE
DRAWINGS OF THE MOON ENLARGED BY PROF. WEINEK
FROM NEGATIVES MADE AT THE LICK OBSERVATORY.

WALTER W. LAW, esq., of Yonkers, N. Y., has offered to the Lick Observatory the sum of one thousand dollars to defray the cost of reproducing the drawings of the Moon enlarged by Prof. WEINEK from original negatives made at Mount Hamilton (See *Publications A. S. P.*, vol. III, page 333.) This generous gift will enable us to devote a separate volume to the Moon and to illustrate it in a splendid manner. E. S. H.

“PROPOSED DISSOLUTION OF A FAMOUS FIRM.

“BOSTON, October 18.—The noted telescope-makers, ALVAN G. and GEORGE B. CLARK, Cambridge, are to dissolve partnership. This step is taken for the sole reason that GEORGE B., the senior member, is physically unable to continue in active business and desires to be relieved of all responsibility. Mr. CLARK senior is 65 years old, and while he cannot be strictly called a sick man is far from being strong. He went into business when he was 20.” —*S. F. Chronicle*, October 19, 1891.

THE GREAT RED SPOT ON *JUPITER* [BY W. F. DENNING,
F. R. A. S].

“The great red spot has been visible, and its appearance and movements closely watched during thirteen years, for it was in July, 1878, that it was first announced as a striking object. But it probably existed long before this, for the drawings of previous observers include forms which have a very suggestive resemblance to the red spot, though they are under a less conspicuous aspect. There is, in fact, little doubt that this marking is an old feature, but it is liable to considerable variations of tint, inducing obvious changes in its general appearance as presented to telescopic observers. Layers of cloud, moving with unequal velocities and at different elevations above the surface of the planet, probably overlap the spot and partially obliterate it at times, but its definite elliptical outline has always been preserved, and its dimensions have not varied materially. It is the coloring of the spot that has exhibited inconstancy, and especially that of the central region, which changed from brick-red in 1878–81 to a very light tint, differing little, if at all, from the other parts of the planet’s